

FIG. 200

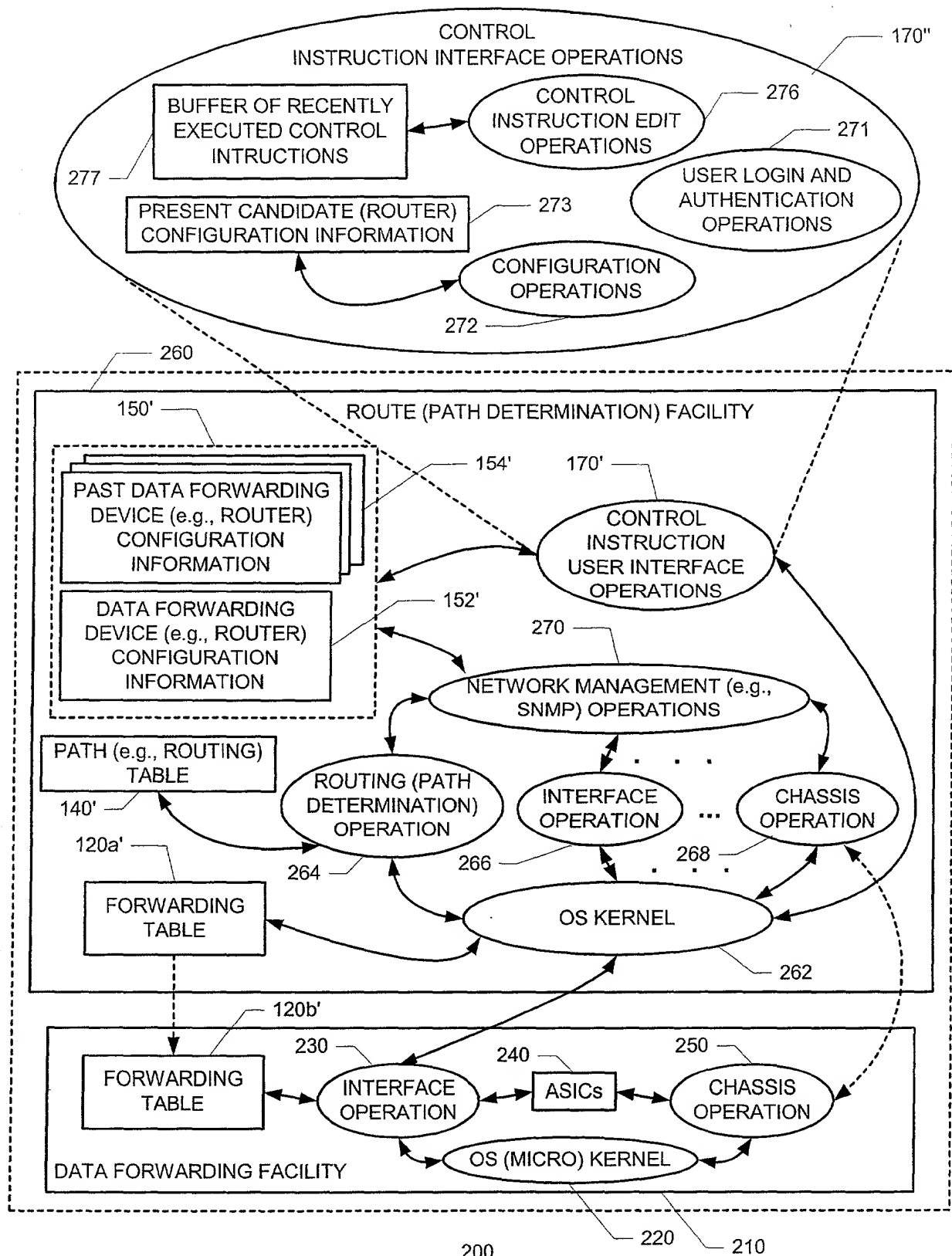


FIGURE 2

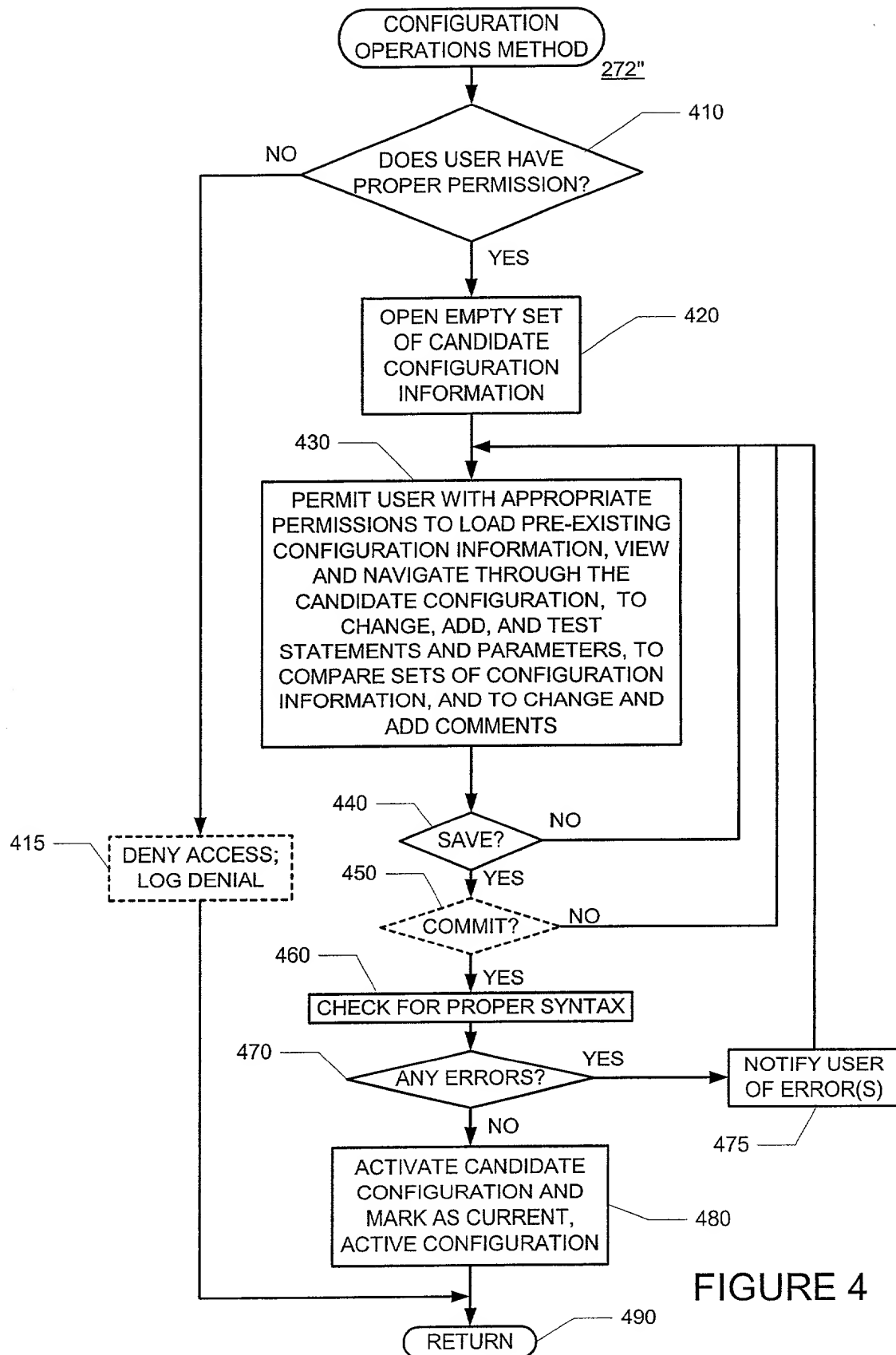
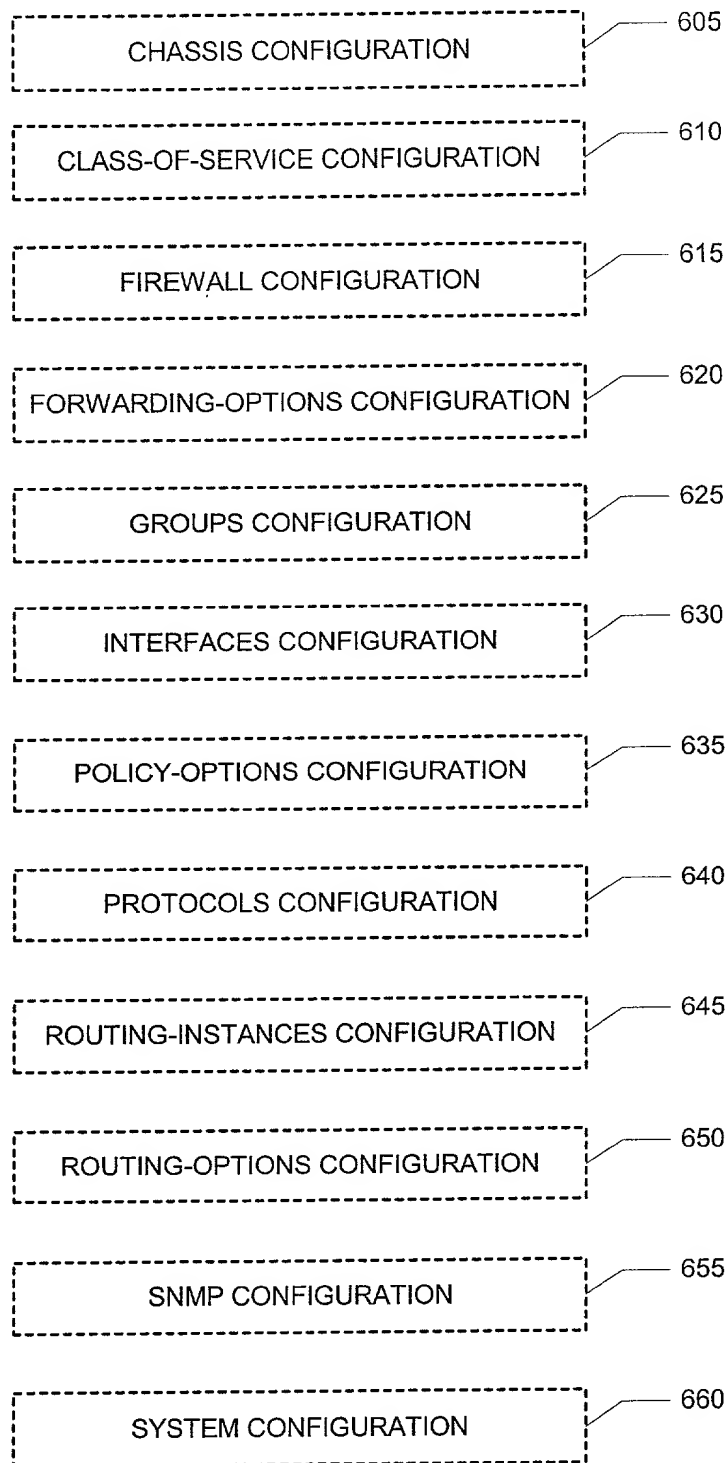


FIGURE 4

ROUTER CONFIGURATION FILE



152"

FIGURE 6

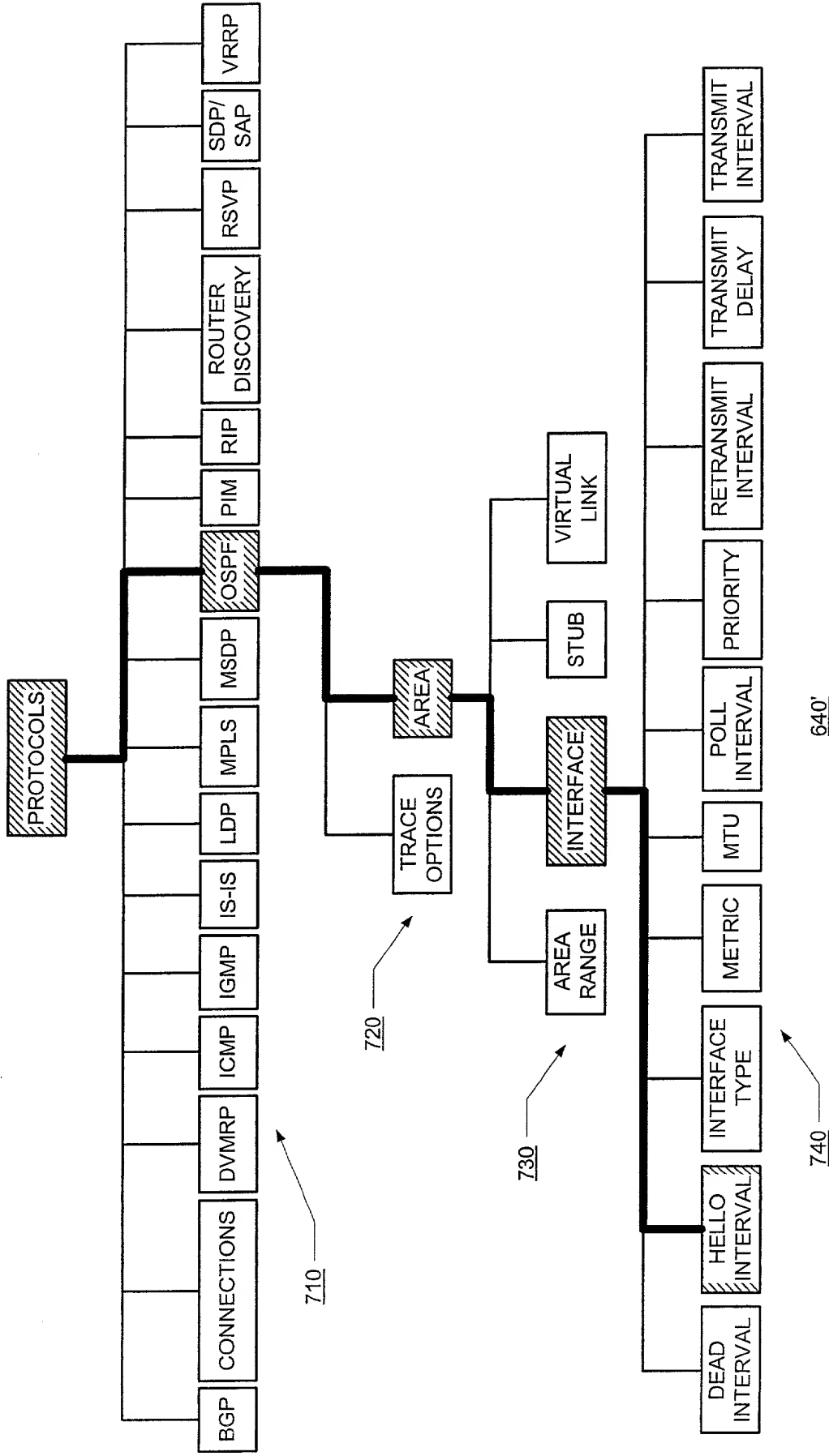


FIGURE 7

[edit class-of-service] Hierarchy Level

```

class-of-service {
  input {
    fpc fpc-number {
      precedence-map map-name;
    }
    interfaces {
      interface-name {
        inet-precedence-map;
        mpls-cos-map;
        unit unit-number {
          output-queue queue-number;
        }
      }
    }
    precedence-map map-name {
      bits precedence-bit output-queue queue-number;
    }
  }
  output {
    drop-profile profile-name {
      stream-profile {
        fill-level fill-percentage drop-probability probability-percentage;
      }
      plp-set-queue-profile {
        fill-level fill-percentage drop-probability probability-percentage;
      }
      plp-clear-queue-profile {
        fill-level fill-percentage drop-probability probability-percentage;
      }
    }
    fpc fpc-number {
      drop-profile profile-name;
    }
    interfaces {
      interface-name {
        transmit-queues {
          output-queue queue-number bandwidth percentage;
        }
        weighted-round-robin {
          output-queue queue-number weight percentage;
        }
        unit unit-number {
          precedence-rewrite {
            output-queue queue-number {
              plp-clear rewrite-bits precedence-bit;
              plp-set rewrite-bits precedence-bit;
            }
          }
        }
      }
    }
  }
  policy {
    class class-name {
      classification-override {
        output-queue queue-number;
      }
    }
  }
} # End of [edit class-of-service] hierarchy level

```

FIGURE 9

```

sonet-options {
  aps {
    advertise-interval milliseconds;
    authentication-key key;
    force;
    hold-time milliseconds;
    lockout;
    neighbor address;
    paired-group group-name;
    protect-circuit group-name;
    request;
    revert-time seconds;
    working-circuit group-name;
  }
  bytes {
    e1-quiet value;
    f1 value;
    f2 value;
    s1 value;
    z3 value;
    z4 value;
  }
  fcs (32 | 16);
  loopback (local | remote);
  path-trace trace-string;
  (payload-scrambler | no-payload-scrambler);
  rfc-2615;
  (z0-increment | no-z0-increment);
}
speed (10m | 100m);
t1-options {
  buildout (0-133 | 133-266 | 266-399 | 399-532 | 532-655);
  byte-encoding (nx64 | nx56);
  fcs (32 | 16);
  framing (sf | esf);
  idle-cycle-flags (flags | ones);
  invert-data;
  line-encoding (ami | b8zs);
  loopback (local | remote);
  start-end-flag (shared | filler);
  timeslots slot-number;
}
t3-options {
  bert-algorithm algorithm;
  bert-error-rate rate;
  bert-period seconds;
  (cbit-parity | no-cbit-parity);
  compatibility-mode (digital-link | kentrox | larscom) <subrate value>;
  fcs (32 | 16);
  (feac-loop-respond | no-feac-loop-respond);
  idle-cycle-flag value;
  (long-buildout | no-long-buildout);
  loopback (local | remote);
  (payload-scrambler | no-payload-scrambler);
  start-end-flag value;
}
traceoptions {
  flag flag <flag-modifier> <disable>;
}
transmit-bucket {
  overflow (tag | discard);
  rate speed;
}

```

FIGURE 13b


```

        flag flag <flag-modifier> <disable>;
    }
}
group group-name {
    disable;
    export [ policy-names ];
    import [ policy-names ];
    local-address address;
    traceoptions {
        file name <replace> <size size> <files number> <no-stamp>
        <{world-readable | no-world-readable}>;
        flag flag <flag-modifier> <disable>;
    }
    peer address; {
        disable;
        export [ policy-names ];
        import [ policy-names ];
        local-address address;
        mode <{mesh-group | standard}>;
        traceoptions {
            file name <replace> <size size> <files number> <no-stamp>
            <{world-readable | no-world-readable}>;
            flag flag <flag-modifier> <disable>;
        }
    }
}
} #End of [edit protocols msdp] hierarchy level

```

```

OSPF ospf {
    disable;
    export [ policy-names ];
    external-preference preference;
    preference preference;
    reference-bandwidth reference-bandwidth;
    traffic-engineering {
        no-topology;
        shortcuts;
    }
    traceoptions {
        file name <replace> <size size> <files number> <no-stamp>
        <{world-readable | no-world-readable}>;
        flag flag <flag-modifier> <disable>;
    }
    area area-id {
        area-range network/masklen <restrict>;
        authentication-type authentication;
        interface interface-name {
            disable;
            authentication-key key <key-id identifier>;
            dead-interval seconds;
            hello-interval seconds;
            interface-type type;
            metric metric;
            neighbor address <eligible>;
            passive;
            poll-interval seconds;
            priority priority;
            retransmit-interval seconds;
            transit-delay seconds;
            transmit-interval seconds;
        }
    }
}

```

FIGURE 15h


```

        flag flag <flag-modifier> <disable>;
    }
    authentication-key password;
    authentication-type type;
    (check-zero | no-check-zero);
    import [policy];
    message-size number;
    metric-in metric;
    receive receive-options;
    send send-options;
    group group-name {
        export [policy];
        metric-out metric;
        preference preference;
        neighbor neighbor-name {
            authentication-key password;
            authentication-type type;
            (check-zero | no-check-zero);
            import [policy];
            message-size number;
            metric-in metric;
            receive receive-options;
            send send-options;
        }
    }
} # End of [edit protocols rip] hierarchy level

```

Router Discovery

```

router-discovery {
    disable;
    traceoptions {
        file name <replace> <size size> <files number> <no-stamp>
        <(world-readable | no-world-readable)>;
        flag flag <flag-modifier> <disable>;
    }
    interface interface-name {
        min-advertisement-interval seconds;
        max-advertisement-interval seconds;
        lifetime seconds;
    }
    address address {
        (advertise | ignore);
        (broadcast | multicast);
        (priority priority | ineligible);
    }
} # End of [edit protocols router-discovery] hierarchy level

```

RSVP

```

rsvp {
    disable;
    keep-multiplier number;
    refresh-time seconds;
    traceoptions {
        file name <replace> <size size> <files number> <no-stamp>
        <(world-readable | no-world-readable)>;
        flag flag <flag-modifier> <disable>;
    }
    interface interface-name {
        disable;
        (aggregate | no-aggregate);
        authentication-key key;
        bandwidth bps;
    }
}

```

FIGURE 15j

[edit routing-options] Hierarchy Level

```

routing-options {
  aggregate {
    defaults {
      (active | passive);
      as-path <as-path> <origin (egp | igp | incomplete | none)> <atomic-aggregate>
        <aggregator as-number in-address>;
      community ([ community-ids ] | no-advertise | no-export | no-export-subconfed | none);
      (full | brief);
      (metric | metric2 | metric3 | metric4) value;
      (preference | preference2 | color | color2) preference;
      (tag | tag2) string;
    }
    route destination-prefix {
      policy policy-name;
      (active | passive);
      as-path <as-path> <origin (egp | igp | incomplete | none)> <atomic-aggregate>
        <aggregator as-number in-address>;
      community ([ community-ids ] | no-advertise | no-export | no-export-subconfed | none);
      (full | brief);
      (metric | metric2 | metric3 | metric4) value;
      (preference | preference2 | color | color2) preference;
      (tag | tag2) string;
    }
  }
  autonomous-system autonomous-system <loops number>;
  confederation confederation-autonomous-system members autonomous-system;
  forwarding-table {
    export { policy-names };
  }
  generate {
    defaults {
      (active | passive);
      as-path <as-path> <origin (egp | igp | incomplete | none)> <atomic-aggregate>
        <aggregator as-number in-address>;
      community ([ community-ids ] | no-advertise | no-export | no-export-subconfed | none);
      (full | brief);
      (metric | metric2 | metric3 | metric4) value;
      (preference | preference2 | color | color2) preference;
      (tag | tag2) string;
    }
    route destination-prefix {
      policy policy-name;
      (active | passive);
      as-path <as-path> <origin (egp | igp | incomplete | none)> <atomic-aggregate>
        <aggregator as-number in-address>;
      community ([ community-ids ] | no-advertise | no-export | no-export-subconfed | none);
      (full | brief);
      (metric | metric2 | metric3 | metric4) value;
      (preference | preference2 | color | color2) preference;
      (tag | tag2) string;
    }
  }
  interface-routes {
    rib-group routing-table-name;
  }
  martians {
    destination-prefix match-type <allow>;
  }
}

```

FIGURE 17a

```

multicast {
    scope scope-name {
        interface interface-name;
        prefix destination-prefix;
    }
}
options {
    syslog (level level | upto level);
}
rib routing-table {
    static {
        defaults {
            (active | passive);
            as-path <as-path> <origin (egp | igp | incomplete | none)> <atomic-aggregate>
              <aggregator as-number in-address>;
            community ([ community-ids ] | no-advertise | no-export | no-export-subconfed | none);
            (install | no-install);
            (metric | metric2 | metric3 | metric4) value;
            (preference | preference2 | color | color2) preference;
            (readvertise | no-readvertise);
            (no-retain | retain);
            (tag | tag2) string;
        }
        route destination-prefix {
            next-hop;
            (active | passive);
            as-path <as-path> <origin (egp | igp | incomplete | none)> <atomic-aggregate>
              <aggregator as-number in-address>;
            community ([ community-ids ] | no-advertise | no-export | no-export-subconfed | none);
            (install | no-install);
            (metric | metric2 | metric3 | metric4) value;
            (preference | preference2 | color | color2) preference;
            (readvertise | no-readvertise);
            (no-retain | retain);
            (tag | tag2) string;
        }
    }
    aggregate {
        defaults {
            (active | passive);
            as-path <as-path> <origin (egp | igp | incomplete | none)> <atomic-aggregate>
              <aggregator as-number in-address>;
            community ([ community-ids ] | no-advertise | no-export | no-export-subconfed | none);
            (full | brief);
            (metric | metric2 | metric3 | metric4) value;
            (preference | preference2 | color | color2) preference;
            (tag | tag2) string;
        }
    }
    route destination-prefix {
        policy policy-name;
        (active | passive);
        as-path <as-path> <origin (egp | igp | incomplete | none)> <atomic-aggregate>
          <aggregator as-number in-address>;
        community ([ community-ids ] | no-advertise | no-export | no-export-subconfed | none);
        (full | brief);
        (metric | metric2 | metric3 | metric4) value;
        (preference | preference2 | color | color2) preference;
        (tag | tag2) string;
    }
}

```

FIGURE 17b

```

generate {
    defaults {
        (active | passive);
        as-path <as-path> <origin (egp | igp | incomplete | none)> <atomic-aggregate>
            <aggregator as-number in-address>;
        community ([ community-ids ] | no-advertise | no-export | no-export-subconfed | none);
        (full | brief);
        (metric | metric2 | metric3 | metric4) value;
        (preference | preference2 | color | color2) preference;
        (tag | tag2) string;
    }
    route destination-prefix {
        policy policy-name;
        (active | passive);
        as-path <as-path> <origin (egp | igp | incomplete | none)> <atomic-aggregate>
            <aggregator as-number in-address>;
        community ([ community-ids ] | no-advertise | no-export | no-export-subconfed | none);
        (full | brief);
        (metric | metric2 | metric3 | metric4) value;
        (preference | preference2 | color | color2) preference;
        (tag | tag2) string;
    }
}
martians {
    destination-prefix match-type <allow>;
}
}
rib-groups {
    group-name {
        import-rib [ group-name ];
        export-rib group-name;
    }
}
router-id address;
static {
    defaults {
        (active | passive);
        as-path <as-path> <origin (egp | igp | incomplete | none)> <atomic-aggregate>
            <aggregator as-number in-address>;
        community ([ community-ids ] | no-advertise | no-export | no-export-subconfed | none);
        (install | no-install);
        (metric | metric2 | metric3 | metric4) value;
        (preference | preference2 | color | color2) preference;
        (readvertise | no-readvertise);
        (no-retain | retain);
        (tag | tag2) string;
    }
    route destination-prefix {
        next-hop;
        (active | passive);
        as-path <as-path> <origin (egp | igp | incomplete | none)> <atomic-aggregate>
            <aggregator as-number in-address>;
        community ([ community-ids ] | no-advertise | no-export | no-export-subconfed | none);
        (install | no-install);
        (metric | metric2 | metric3 | metric4) value;
        (preference | preference2 | color | color2) preference;
        (readvertise | no-readvertise);
        (no-retain | retain);
        (tag | tag2) string;
    }
}
}
traceoptions {
    file name <replace> <size size> <files number> <no-stamp>
        <{world-readable | no-world-readable}>;
    flag flag <flag-modifier> <disable>;
}
} # End of [edit routing-options] hierarchy level

```

FIGURE 17c

[edit system] Hierarchy Level

```
system {
  authentication-order [ authentication-methods ];
  backup-router address <destination destination-address>;
  compress-configuration-files;
  default-address-selection;
  dhcp-relay (server address | disable);
  diag-port-authentication (encrypted-password "password" | plain-text-password);
  domain-name domain-name;
  domain-search [domain-list];
  host-name host-name;
  location {
    altitude feet;
    country-code code;
    hcoord horizontal-coordinate;
    lata service-area;
    latitude degrees;
    longitude degrees;
    npa-nxx number;
    postal-code postal-code;
    vcoord vertical-coordinate;
  }
  login {
    message text;
    class class-name {
      allow-commands "regular-expression";
      deny-commands "regular-expression";
      idle-timeout minutes;
      permissions { permissions };
    }
    user user-name {
      full-name complete-name;
      uid uid-value;
      class class-name;
      authentication {
        (encrypted-password "password" | plain-text-password);
        ssh-rsa "public-key";
      }
    }
  }
}
name-server {
  address;
}
no-redirects;
ntp {
  authentication-key key-number type type value password;
  boot-server address;
  broadcast <address> <key key-number> <version value> <ttl value>;
  broadcast-client;
  multicast-client <address>;
  peer address <key key-number> <version value> <prefer>;
  server address <key key-number> <version value> <prefer>;
  trusted-key [ key-numbers ];
}
ports {
  auxiliary {
    insecure;
    speed baud-rate;
    type terminal-type;
  }
  console {
    insecure;
    speed baud-rate;
    type terminal-type;
  }
}
```

FIGURE 19a

```

    }
}
processes {
    inet-process (enable | disable);
    interface-control (enable | disable);
    mib-process (enable | disable);
    ntp (enable | disable);

    routing (enable | disable);
    snmp (enable | disable);
    watchdog (enable | disable) <timeout seconds>;
}
radius-server server-address {
    port number;
    retry number;
    secret password;
    timeout seconds;
}
root-authentication {
    (encrypted-password "password" | plain-text-password);
    ssh-rsa "public-key";
}
services {
    finger <connection-limit limit> <rate-limit limit>;
    ssh <connection-limit limit> <rate-limit limit>;
    telnet <connection-limit limit> <rate-limit limit>;
}
static-host-mapping {
    host-name {
        inet [ address ];
        sysid system-identifier;
        alias [ alias ];
    }
}
syslog {
    file filename {
        facility level;
        archive {
            files number;
            size size;
            (world-readable | no-world-readable);
        }
    }
    host hostname {
        facility level;
        facility-override facility;
        log-prefix string;
    }
    user (username | *) {
        facility level;
    }
    console {
        facility level;
    }
    archive {
        files number;
        size size;
        (world-readable | no-world-readable);
    }
}
tacplus-server server-address {
    secret password;
    single-connection;
    timeout seconds;
}
time-zone time-zone;
}} # End of [edit system] hierarchy level

```

FIGURE 19b